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which manual power is applied by the handle **b**; the wheel **d** gives motion to an iron friction roller **e**, on the projecting axis of which the quill or reed **g** is fixed, on which the silk is wound.

The roller **e** is kept close to the wheel **d** by two springs **f** and **m**, and the friction-wheels **a** and **c** are also kept in contact by the spring **k**, which is fastened at its upper end to the frame **i j**, and at its lower end to the top of the post **h**, on which the wheel **a** revolves. The frame **i j** is connected to the stool by the hinges **j j**.

By the improvement effected by Mr. Jones, the operation of winding is performed in much less time, and with a more simple and less expensive machine.

### No. VIII.

#### IMPROVED HORSEHAIR LOOM.

*The SILVER ISIS MEDAL and THREE POUNDS were presented to Mr. WILLIAM ROOK, 17 Russell Court, Covent Garden, for his improvements in the Horsehair Loom; a Model of which has been placed in the Society's Repository.*

17 Russell Court, Brydges Street,  
Covent Garden.

SINCE I brought the model from the Society's house, I have altered the action of driving the hook altogether. Before, the hook was driven by a band passing over pulleys, which was carried up to a large pulley fitted to the axle on the top of the loom; now, instead of that friction, it is simply driven by a rod fixed to the axle on the top of the loom, which, I consider, is the easiest way it can be done to make the loom complete for working.

There is required a drawing-in machine to be attached to the roller, to draw the cloth in as it is woven. This drawing-in machine is well understood by those who work the steam-looms and the riband-looms. It is not in my power to attach the drawing-in machine, on account of the expense.

When the loom is made complete with the drawing-in machine, it will enable the weaver to make a piece of horsehair cloth or willow without the assistance of a server, which will save the weaver from five to six shillings per week. The expense is not so bad as the inconvenience; when the work is in a hurry it is most likely the servers will leave you for the sake of getting a trifle more per week, which involves the weaver in great difficulties; and it is often the case that the weaver cannot get another server directly, if he does, he may not answer the purpose so well. There are other inconveniences arising from the employment of servers. This plan being put into operation will be of a very great advantage in that branch of the business.

I am proud, sir, of one of my improvements in particular, that is, the shaft mounture the Society rewarded me for in 1836, as masters and men derived great benefit therefrom.

This is my last attempt at any improvements, as I hope I have done with the weaving business altogether.

I remain, Sir, &c. &c.

WILLIAM ROOK.

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SIR,

April 6, 1842.

SINCE I was before your Committee I have been engaged in completing the loom as an amendment to Mr. Ferry's. My plan will move the battens off and pass the shuttle at

the same time ; I have, likewise, brought a return motion to bring the battens on, so that the work can be made to the greatest nicety possible ; there are neither springs nor weights to bring on the battens. This same model will shew that horsehair looms can be worked by one hand better than by two, which I can shew you from experience.

It is a common case in the black horsehair seating to pay from seven to nine shillings for servers for a thirty-two yard length, for which the weaver receives one pound. The weaver if he works no more hours would be better off by making the piece for fourteen shillings than twenty ; but this plan enables him to work what hours he chooses. No one knows the loss and trouble people experience through having servers but they who have to depend on them. This plan will enable the weaver to make full as much work in the same time as with the server, as then he will labour under no fear of his misguidance. This plan will relieve the horsehair weavers from a great deal of trouble, as well as a great expense, and enable the horsehair manufacturer to sell the article for 20 per cent lower than he can possibly do at present. This plan of working is well worthy of a patent, as there will be great advantages arising from it. I will bring you a working model of this plan in the course of the present week, if possible.

I remain, Sir, &c. &c.

*To the Secretary of the  
Society of Arts.*

W. Rook.

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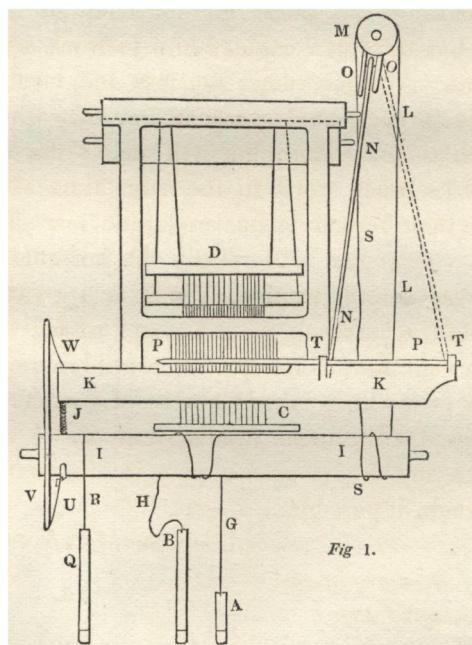
The object of Mr. Rook's improvement on the ordinary loom for weaving horsehair is to dispense with the attendance of a server. The servers usually employed are either boys, girls, or young women, whose duty it is

to lay the horsehair on to the hook, and who earn by this employment at the rate of seven shillings a-week.

In the accompanying figs. 1 and 2 the framework supporting the various parts of the machine is left out, to avoid confusion.

Fig. 1 is a front view of the batten (without the breast-roll), and fig. 2 is a side view of the same.

A B are the alternating treadles which open the shed ; the cords E F, which connect the lams C D with the treadles, as shewn in fig. 2, are omitted in fig. 1. The

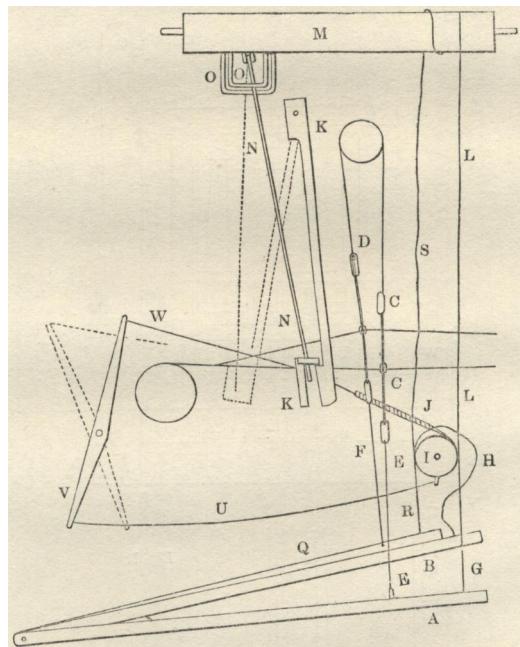


treadles are also connected by extra strings, G H, with a roller I I, both acting in the same direction.

The treadle A is shewn down, its cord G is therefore tight, having pulled round the roller I, while the cord H is

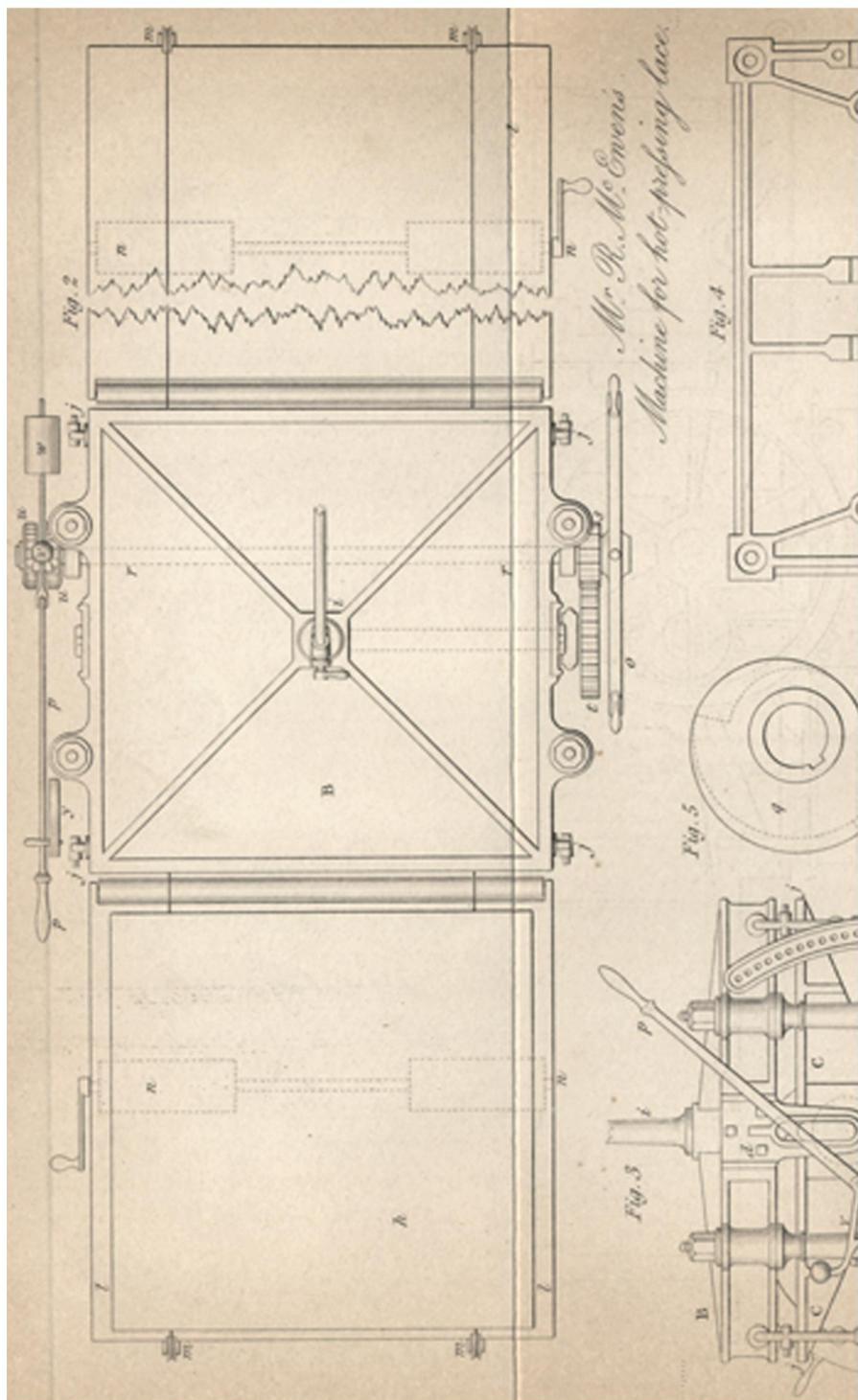
slack ; the roller *i* has wound on it the spring *j*, which connects it with the batten *k*, and thus pulled back the batten ; the roller *i* has also wound on it some of the string *l*, and moved the upper roller *m*, from which a light rod *n n* hangs between the staples *o o*, so as to move freely in each direction with the batten, but it is required to move crosswise with the turning of the roller *m*. The lower end of the light rod *n* passes through an aperture in the hook *p*. There is a groove in the batten,

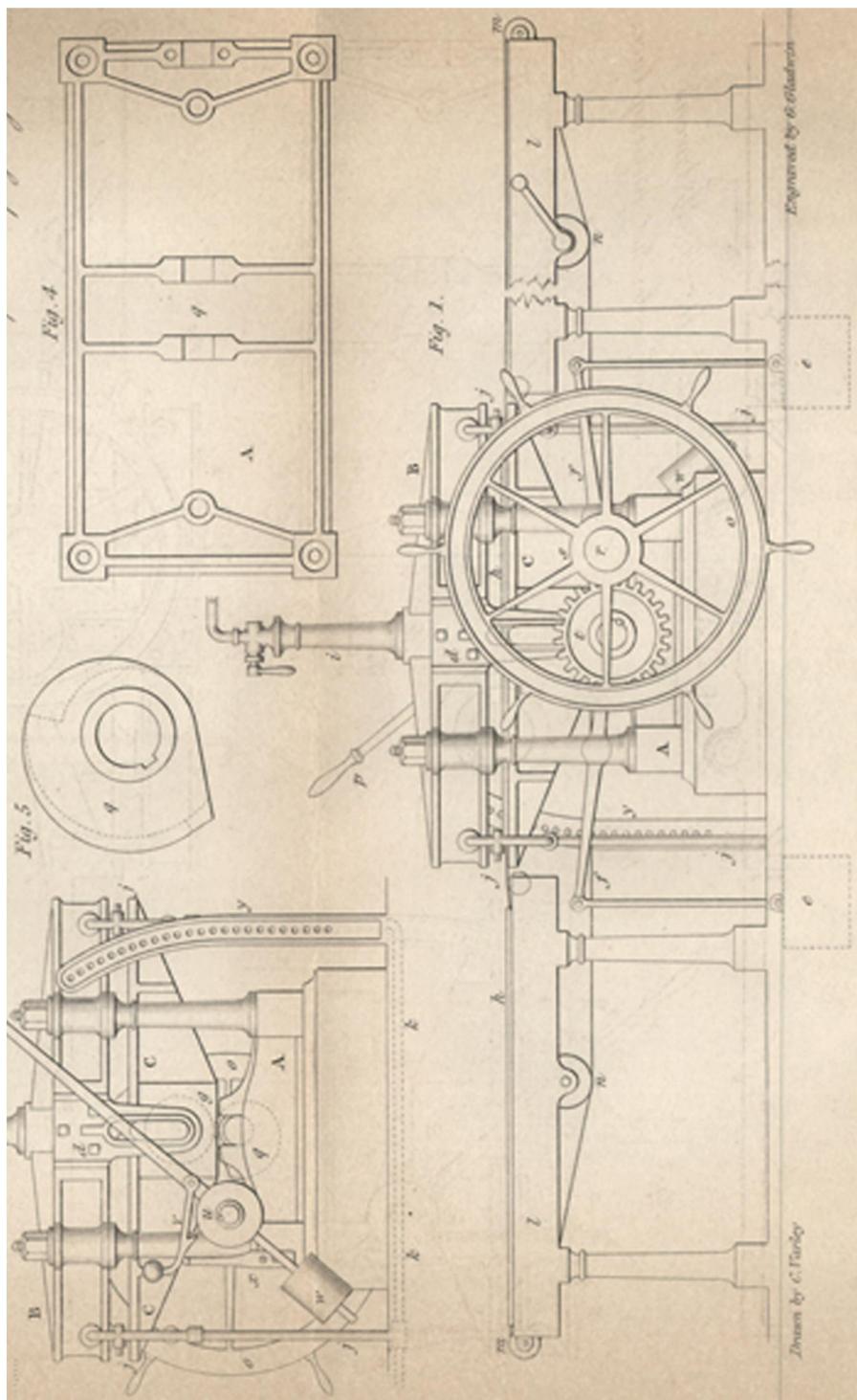
Fig. 2.



under the course of the hook, for the end of the rod to travel in.

As shewn in fig. 1, the hook is passed through the shed ready to receive the hair, which the weaver applies





to the hook with his left hand, and takes hold of one end while the hook is drawing the remainder through the shed; he then puts down the third treadle *Q*, its cord *R* pulling back the roller *I*, which tightens the counter-cord *S*, and so moves round the roller *M* in the other direction; its rod *N* then returns to the position shewn by the dotted lines, which withdraws the hook *P*, taking the hair with it, and laying it across the warp.

The hook is kept in its place by two straps *T T*, under which it freely slides.

While the hook is flying back, the motion of the roller *I* pulls the lever *V* by the cord *U*, and causes the upper end, by means of the string *W*, to pull the batten forward.

The treadle *B* is then put down again, and the whole operation repeated.

#### No. IX.

#### MACHINERY FOR HOTPRESSING LACE GOODS.

*The GOLD ISIS MEDAL was presented to Mr. ROBERT M'EWEN, of High Mark, near Stranraer, for his Machinery for Hotpressing Lace Goods.*

*High Mark, near Stranraer,*  
*SIR,* *March 10, 1843.*

I BEG leave to submit to the Society of Arts, &c. the drawings and description of machinery which I invented and made for the purpose of hotpressing lace goods and other light fancy fabrics manufactured from silk or cotton, &c.